

THE POLITICAL ECONOMY OF NATURAL DISASTER PREVENTION AND MITIGATION

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Abstract

Societies do not take adequate action to transfer risk or to prevent/mitigate potential damage caused by natural disasters. Essentially, the public sector must intervene in market failures stemming from such problems as imperfect and/or asymmetric information, myopia, and collective inertia. Although more efficient allocation of social resources reduce the fiscal burden of natural disasters on public finance and increase social welfare, the public sector also fails in this regard. Specifically, certain political motivations prevent effective natural disaster risk management, one example being that politicians, due to the problem of time inconsistency in public finances, attach greater importance to policies that will bolster short-term electoral support. Politicians consequently fail to enact sufficient regulations and make the necessary investments with regard to natural disaster prevention if the safeguard's benefits manifest in the long term while placing burdens on constituents in the short. As such, they prefer distributing disaster aid as doing so garners election support. Solving the problems stemming from political motivations is only possible by establishing institutional mechanisms that increase democratic accountability and raise public awareness of the risks of natural disasters.

Keywords: Natural disaster risks, Asymmetric information, Myopia, Collective inertia, Market failures, Public failures

JEL Code: H53, H84, D78.

1. Introduction

Dealing with natural disasters is one of the responsibilities of the public sector. In the event of a natural disaster, while the state works to fulfill its explicit responsibilities like rebuilding damaged and destroyed infrastructure, pressure exerted by the public forces it to fulfill more implicit responsibilities like compensating for economic losses resulting from the natural disaster. The responsibilities necessarily undertaken by the public sector cause added stress to the budget, sometimes to the point of causing the state to succumb to economic crisis. Even if there no change is made to the public budget, resources are forced to be redistributed, which, in the long term, causes policies to deviate from their ultimate objects like providing economic development and fair income distribution, on the one hand, and declines in social welfare, on the other.

Several factors, including the frequency and severity of natural disasters as well as the population density, degree of economic development, and income distributions in the areas where they occur all affect the total loss in life and property caused by disasters, which, in turn, significantly impacts the state's financial obligations. Additionally, in societies whose adaptive capacity to natural disasters is high, disasters do not always result in a social or economic calamity. The loss of life and property is less in societies that take actions to transfer risk and to prevent and/or mitigate the damage caused by natural disasters. However, a large number of theoretic/empirical

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studies following different approaches indicate the existence of market failures in this vein. Public actions are required in order to alleviate market failures. The public sector can intervene in problems leading to market failures (e.g. imperfect/asymmetric information, myopia, and collective inertia) and through public actions and by encouraging individual actions, can ensure that sufficient safeguards against natural disasters are put into place. Just as effective public interventions can minimize the financial burden incurred on the state by natural disasters, so too can they lead to an increase in welfare by enabling a more effective distribution of communal resources. This said, however, the public sector, despite its being responsible to intervene in market failures, also suffers from its own failures in this vein. Problems like limited financial resources, inadequate technological and institutional infrastructure, and corruption all constitute serious obstacles to effective safeguards' being implemented. There are, moreover policy motivations that deter the public sector from devising effective regulations for the implementation of safeguards against natural disasters. By examining the empirical and theoretical literature, the current study seeks to identify those market failures and public sector failures that lead to insufficient safeguards from being implemented in regard to the prevention, mitigation, and transfer of natural disaster risks. In the following (i.e., second) section, examples of the short, middle, and long-term economic and financial costs caused by natural disasters are given. In the third section, market failures leading to deficient safeguards' being implemented are discussed. In the fourth section, appropriate public sector interventions and obstacles impeding these safeguards from being implemented will be assessed. Finally, the fifth section concludes this study and offers a general assessment of the current status quo.

2. Economic and Financial Cost of Natural Disasters

Not only are natural disasters detrimental to human and physical capital, they have the potential to severally disturb social welfare in the short, middle, and long term. While the immediate consequences of natural disasters include mortality, morbidity, and the destruction of physical infrastructure, repercussions to the economy (e.g., income recipients, employment, sectoral production composition, inflation) will emerge in the long run. In 1991, The Economic Commission for Latin American and the Caribbean (ECLAC) developed a methodology distinguishing between the direct losses, indirect losses, and secondary effects of catastrophes. Direct losses are defined as all capital and stock losses on fixed assets, finished and semi-finished goods, raw materials, and spare parts incurred during or as a direct consequence of natural disasters. Indirect losses are Assoc.d with the effects of lost production and the inability to provide services as a result of disruptions occurring in the flow of goods following a catastrophe. Secondary effects, however, refer to disasters' effects on general economic performance (Marti, 1997).

There are several studies indicating that natural disasters do not significantly impact macro-economic dynamics and that they may even have positive effects on them. Albala-Bertrand (1993), for example, found that catastrophes may stimulate the construction sector. Using their *creative destruction* hypothesis as a springboard, Jha et. al. (2018) assert that from a development standpoint, disasters generate positive outcomes. That said, a large number of empirical studies also support theoretic predictions that natural disasters do indeed have negative impacts on the economy in the short, middle, and long term as a result of their direct, indirect, and secondary effects. For example, Murlidharan & Shah (2001), Hochrainer-Stigler (2009), and Raddatz (2007) reached findings on how economic growth was negatively affected; Otero and Marti (1995) and Benson & Clay (2004) on how economic development was negatively affected; and Heger et. al. (2008) on how trade gaps were negatively affected.

Natural disasters also negatively affect public finance in the short, middle, and long term. When a natural disaster occurs, additional expenses to cover emergency needs emerge. Undoubtedly, one of the state's explicit responsibilities is to reconstruct damaged infrastructure. Yet, through political pressure, constituents and interest groups remind the state of its implicit responsibilities. While the public sector works to fulfill the demands of society, it incurs added expenses coupled with reduced income. Short-term fiscal deficits eventually lead to permanent fiscal imbalances in the long term. By affecting the government's ability to maintain and/or improve specific public activities, disruptions to fiscal stability only serve to harm the overall quality of public services (Noy & Nualsri, 2011; Benali, et. al., 2018; Akar, 2013; Hochrainer-Stigler, Keating et. al., 2018).

3. Reasons for Insufficient Natural Disaster Prevention and Mitigation: Market Failures

By making buildings resilient to disasters, developing early warning systems, using long-term weather prediction reports and crop modeling studies, and the public sector's making other similar investments to engineering solutions, potential damage caused by disasters may be significantly reduced. Risk may be transferred by using financing tools like different types of insurances. In addition to lack of income and inequality in income distribution, both market and behavioral failures cause the private sector to implement insufficient safeguards to disasters. There are a variety of approaches explaining why individuals make irrational investments against disaster risks. Several problems like imperfect and asymmetric information, myopia, collective action problems, and an understanding that such events are acts of God cause market and behavioral failures. Assuming that a rational decision has been made, the moral hazard problem may still cause insufficient safeguards from being implemented.

4. Reasons for Insufficient Natural Disaster Prevention and Mitigation: Public Sector Failures

Solutions for market failures require public actions. As a solution to the problem of collective action and information asymmetry, the state can devise and enforce stronger building standards, requiring them to be more resilient to natural disasters. The state can also take actions to deter or legally prohibit production activities and myopic residential development in high risk areas. The construction of dams, flood warning systems, fire extinguishment equipment, and other similar administrative actions can be instituted with public funds. Public awareness of dangers, risks, and prevention strategies can be increased. Where the construction of housing and industrial areas in regions at risk of natural disasters cannot be prevented, buildings and residential zones can be strengthened through the use of subventions and other types of incentives (Kenny, 2009; Carsell et. al., 2004; Neumayer et. al., 2014; Pelling et. al., 2002; Dayton-Johnson, 2004: 31). Risk may be transferred by allocating funds for disasters, supporting private insurance markets, and developing public-private insurance. Likewise, lack of income, insufficient technical and institutional infrastructure, and certain policy factors may also cause similar public sector failures. For example, devising and enforcing regulations, like zoning and building codes, cannot be effectively implemented when income, technology, and infrastructure are inadequate or when corruption prevails. There may not be room in the budget for necessary public investments or natural disaster funds. In addition to these structural hurdles, there are also political incentives hindering politicians from devising, from a social cost-benefit standpoint,

more effective policies against natural disasters. Because of the problem of time inconsistency in public finance, politicians attach more importance to policies that will aid them in being elected in the short term. Voters may not be able to bring themselves to support policy decisions that will cause them short-term difficulties despite their eventual long-term benefits. Not wanting to lose the support of constituents and interest groups, politicians may embrace post-disaster aid policies instead of policies seeking to prevent and/or mitigate the risk of natural disasters or to transfer risk. The empirical literature indicates that when it comes to making investments toward minimizing risks and preventing damage caused by disasters, politicians prefer engaging in disaster aid to implementing deterrent incentives (Gasper & Reeves, 2011; Healy & Malhotra, 2008; 2009; Garrett & Sobel, 2003).

5. Conclusion

Public resources spent following natural disasters may cause deviations in future actions made for prioritized goals like countries' economic growth, development, and income distribution, and in the event of insufficient funds, create financial risks. In order, therefore, to increase the public sector's social welfare and to avoid financial crises, interventions that prevent/mitigate and transfer risk need to be made. Investments seeking to change structural conditions can be made and disaster policies can be integrated into development policies as long-term solutions. In the short term, however, market failures can be solved through regulations and incentives. Although the state theoretically has several tools at its disposal, positive political-economic conditions cause policies in this vein from being developed. Solving problems stemming from political motivations is dependent on devising institutional mechanisms that increase democratic accountability increasing society's awareness of the risks of natural disasters. Considering how competition affects elections and policy decisions, constituents knowledgeable of the potential dangers of natural disasters and what preventive measures may be taken against them may motivate politicians to develop the most advantageous policies.

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